

REMARKS

Claims 1-10, 12-14, 17, 20, 22-30, 35, 37, 39, and 41-49 are in the application. Reconsideration and withdrawal of the rejections are requested in view of the following remarks.

With respect to the § 112(2) rejections at pp. 2-3 of the Office Action, Applicants submit that claims 1 and 25 are not indefinite and confusing, since the claim terms "heated liquid" and "liquid jet" are clearly defined, and the word "liquid" is used with the modifiers "heated" or "jet" where necessary to provide clarity. Moreover, the word "liquid" is used as a noun in the term "heated liquid" (and in the phrase "heating a liquid," in claim 25), whereas it is used as an adjective in the term "liquid jet." This is further illustrated in the dependent claims (e.g., claim 5 recites heating the "liquid jet"). Thus, Applicants believe that the claim terms are distinct and clear, and one of ordinary skill in the art would not find them confusing.

In response to the Examiner's concern that it is not clear whether the liquid in the heated liquid is the same as in the liquid jet, the "heated liquid" and the "liquid jet," as claimed, could be the same liquid, or different liquids. As the Examiner can appreciate, trying to write this explanation into the claims would likely result in awkward claim language potentially less clear than the present claims. Applicants welcome any helpful suggestions the Examiner may provide.

Claims 17 and 44 have been amended to provide proper antecedent basis for each of the cited claim elements, thus overcoming the antecedent basis rejections.

In claim 20, the new element introduced is the "nozzle." The word "a" is properly used to introduce the element "nozzle forming the liquid jet," since the nozzle

element is first introduced in claim 20 and liquid jet is described in claim 1. See MPEP § 2173.05(e). Accordingly, Applicants submit claim 20 has proper antecedent basis.

In claim 35, the phrase ", with the liquid---" has been deleted, and proper antecedent basis for "the surface" has been added.

With respect to the phrase "forming a layer (of liquid)" in claims 1, 35, 43, and 49, Applicants submit that this phrase is not indefinite. Paragraphs 0050-0053 of the specification describe several methods for forming a layer of liquid on a workpiece (e.g., by spraying the liquid onto the workpiece and rotating the workpiece, by providing micro-droplets onto the workpiece, etc.). Other techniques may also be used. Thus, when the claims are read, in light of the specification, it is very clear how the liquid layer may be formed. The claimed step is "forming a layer." This is an actual positive step, regardless of how it may be achieved.

With respect to claim 37, the antecedent basis rejection is not understood. While "condensed steam" element is first introduced in claim 37 (see MPEP § 2173.05(e)), this claim is believed to have proper antecedent basis, and to also be grammatically correct.

With respect to the phrase "forming the liquid into at least one moving column" in claim 42, Applicants submit that this phrase is not indefinite. Paragraph 0108 of the specification describes a method for forming liquid into a moving column. The specific sub-steps or physical structures used to form the column are not intended to be included in claim 42.

Claim 46 is a "step plus function" claim, under 35 U.S.C. § 112(6). The phrases "step for providing" and "step for controlling" in claim 46, as interpreted under § 112(6),

are not indefinite. Paragraphs 0050-0053 of the specification outline several possible methods of providing a layer of liquid on a workpiece (e.g., by spraying the liquid onto the workpiece, by providing micro-droplets onto the workpiece, etc.), and controlling the thickness of the layer (e.g., rotating the workpiece, etc.). The requirements under § 112(6) are fully met.

Turning to the § 103 rejections of claims 46-48 at § 7 of the Office Action, the cited references do not teach or suggest a step for removing a contaminant from a workpiece via physical impact of liquid against the workpiece, as recited in claim 46. Rather, DeGendt (which is accepted to be prior art for the purpose of this Amendment) teaches using a gaseous water vapor and ozone mixture to react with and remove contaminants from a substrate. The ozone reacts at the substrate surface to remove the contaminants (col. 7, lines 13-50). DeGendt makes no mention or suggestion of removing contaminants from a workpiece by using a liquid to physically impact the workpiece.

EP '177, which was cited only for controlling the thickness of a liquid layer, also teaches a chemical removal process, and does not teach or suggest using a liquid to physically impact a workpiece to remove contaminants from the workpiece, as claimed. Thus, a claimed element is entirely lacking from the cited references, and claims 46-48 are therefore believed to be patentable over the combination of DeGendt and EP '177.

As no prior art has been applied against any of the other claims, Applicants understand that these other claims (1-10, 12-14, 17, 20, 22-30, 35, 37, 39, 41-45 and 49) to be free of the prior art.

In view of the foregoing, it is submitted that the claims are in condition for allowance, and a Notice of Allowance is requested.

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Respectfully submitted,

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